

What is claimed is

1. An authentication method comprising the steps of:

a. tagging an item by randomly distributing a taggant in at least part of the
5 item, the taggant being invisible to an unaided human eye under normal
conditions;

b. optically detecting said taggant by

i. placing a detector in proximity to the item and

ii. generating data related to the taggant distribution; and

10 c. verifying whether the data matches previous data from previously
detected items.

2. A method as in claim 1 wherein the item is printed with a liquid, the liquid
comprising printing ink and taggant.

15 3. A method as in claim 1 wherein the item includes a registration feature
detectable by the detector.

4. A method as in claim 1 wherein the verifying step is invariant to the exact
20 placement of the detector relative to the item.

5. A method as in claim 1 wherein the verifying step is tolerant to errors.

6. A method as in claim 1 wherein the verifying step comprises storing at least part
25 of the previous data from previously detected items in RAM.

7. An authentication system for authenticating an item, the authentication system comprising:

- a. a taggant mixed with a material, at least a part of the item comprising the material;
- b. a detector capable of detecting location of the taggant without being required to contact the taggant;
- c. a database for storing taggant locations from one or more items; and
- d. a verification unit for checking whether the item matches any of the one or more items in the database.

8. An authentication method comprising the steps of:

- a. tagging an item by randomly distributing a taggant in at least part of the item;
- b. detecting the taggant by
 - i. placing a detector in proximity to the item and
 - ii. generating first data related to the taggant distribution;
- c. marking the item with a code related to the first data; and
- d. verifying the item at a future time by
 - i. placing a detector in proximity to the item,
 - ii. generating second data related to the taggant distribution and
 - iii. comparing the second data to the marked code.

9. A detector for detecting invisible taggant in an item, the detector comprising of:

a. an electronic camera capable of forming an image of a taggant distribution in the item;

b. means of making the taggant detectable to the camera; and

5

c. image processing means capable of

i. detecting a registration mark on the item and

ii. registering the taggant distribution to the registration mark.